PROCEEDINGS

OF THE

PHYSICAL SOCIETY OF LONDON.

From January 1879 *to July* 1880.

VOL. III.

Reproduced and Printed Photo-Litho Offset for
WM. DAWSON & SONS LTD.
102, Wigmore Street, London, W.1

1951

With the permission of the
PHYSICAL SOCIETY OF LONDON

Printed in England by Henderson and Spalding, London, W.1

CONTENTS.

VOL. III.

Page

Starch and Unannealed Glass under the Polariscope. By Walter Baily. (Plates I.–IV.) 1

An easy Method for Adjusting the Collimator of a Spectroscope. By Arthur Schuster, Ph.D., F.R.A.S. 14

A Condenser of Variable Capacity, and a Total-Reflexion Experiment. By C. V. Boys, A.R.S.M., Lecturer for the Term on Natural Science at Uppingham School 17

On the Music of Colour and Visible Motion. By Professors John Perry and W. E. Ayrton (Plates V. & VI.) 18

On the Determination of the Variation of the Thermal Conductivity of Metals with Temperature, by means of the permanent Curve of Temperature along a uniform thin Rod heated at one end. By Oliver J. Lodge, D.Sc., Lecturer on Applied Mathematics and Mechanics at University College, London. (Plate VII.) 28

On the Photographic Method of Registering Absorption-Spectra, and its Application to Solar Physics. By Capt. W. de W. Abney, R.E., F.R.S. 43

On Spectra of Lightning. By Arthur Schuster, Ph.D., F.R.A.S. 46

On the Transmission and Distribution of Energy by the Electric Current. By C. William Siemens, D.C.L., F.R.S. (Plate VIII.) 52

A new Theory of Terrestrial Magnetism. By Professors John Perry and W E. Ayrton 57

The Maintenance of Constant Pressures and Temperatures. By Frederick D. Brown, B.Sc. (Plate IX.) 68

On the Fracture of Colloids. By Frederick Guthrie. (Plates X. & XI.) 76

Page

Induction-balance and Experimental Researches therewith. By Prof. D. E. Hughes. (Plate XII.) 81

Note on the Examination of certain Alloys by the Aid of the Induction-balance. By W. Chandler Roberts, F.R.S., Chemist of the Mint. (Plate XIII.) 89

On Professors Ayrton and Perry's new Theory of the Earth's Magnetism, with a Note on a new Theory of the Aurora. By H. A. Rowland, Professor of Physics in the Johns Hopkins University 93

Notes from the Physical Laboratory of University College, Bristol. By Prof. Silvanus P. Thompson, B.A., D.Sc. 98

The Distribution of Heat in the Visible Spectrum. By Sir John Conroy, Bart., M.A. 106

Measuring Polariscopes. By Professor W. Grylls Adams, M.A., F.R.S. (Plate XIV.) 112

A Mode of producing Arago's Rotation. By Walter Baily, M.A. (Plates XV. & XVI.) 115

On the Conjugate Positions of two Circular Coils of Wire. By W. Grant, Assistant in the Physical Laboratory, University College, London. (Plate XVII.) 121

On Magneto-Electric Induction. By Frederick Guthrie and C. V. Boys, Assoc. R. School of Mines.—Part I. (Plate XVIII.) 127

On the Determination of the Variation of the Thermal Conductivity of Metals with Temperature, by means of the permanent Curve of Temperature along a uniform thin Rod heated at one end. (Second Paper.) By Oliver J. Lodge, D.Sc., Assistant Professor of Physics in University College, London 141

On an Analogy between the Conductivity for Heat and the Induction-Balance Effect of Copper-Tin Alloys. By W. Chandler Roberts, F.R.S. 156

Note on a Determination of the Specific Electrical Resistance of certain Copper-Tin Alloys. By Oliver J. Lodge, D.Sc. .. 158

On a Suggestion as to the Constitution of Chlorine, offered by the Dynamical Theory of Gases. By A. W. Rücker, M.A., Professor of Physics in the Yorkshire College, Leeds 163

On the Graduation of the Sonometer. By J. H. Poynting, M.A., Fellow of Trinity College, Cambridge 169

On a new Form of Resistance-Balance adapted for comparing Standard Coils. By J. A. Fleming, D.Sc. (Univ. Lond.), Scholar of St. John's College, Cambridge. (Plate XIX.) .. 174

Page

A Dispersion-Photometer. By Professors John Perry and W. E. Ayrton 184

On Intermittent Currents and the Theory of the Induction-balance. By Oliver J. Lodge, D.Sc., Assistant Professor of Physics in University College, London 187

On the Determination of Chemical Affinity in terms of Electromotive Force.—Part I. By C. R. Alder Wright, D.Sc. London, Lecturer on Chemistry and Physics in St. Mary's Hospital Medical School 213

Part II.—By Dr. C. R. Alder Wright and E. H. Rennie, M.A. (Syd.), B.Sc. (Lond.), Demonstrator of Chemistry in St. Mary's Hospital Medical School 246

Determination of the Acceleration of Gravity for Tokio, Japan. By Professors W. E. Ayrton and John Perry 265

On Induction in Telephonic Circuits. By W. Grant 276

[At end of Volume.]

Proceedings at the Meetings, and Report of the President and Council for the Session 1878–79.

Proceedings at the Meetings, and Report of the President and Council for the Session 1879–80.

Fig. 1.

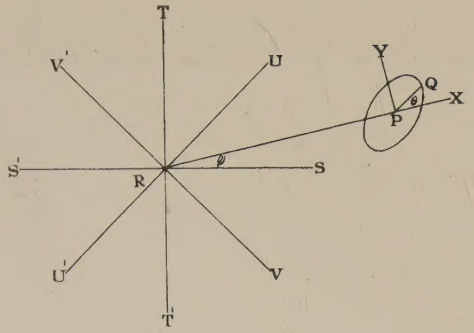


Fig. 6.

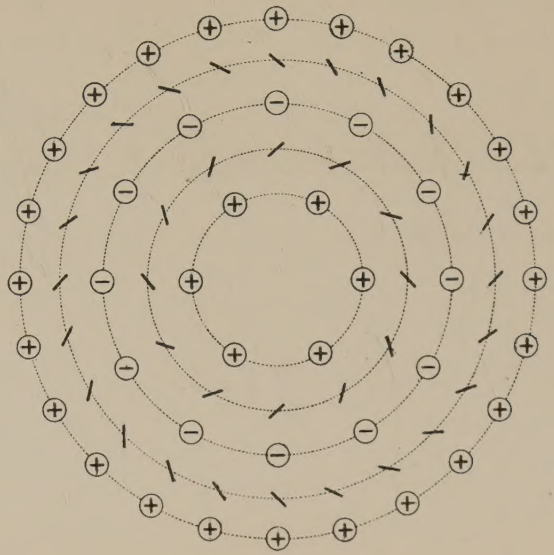


Fig. 7.

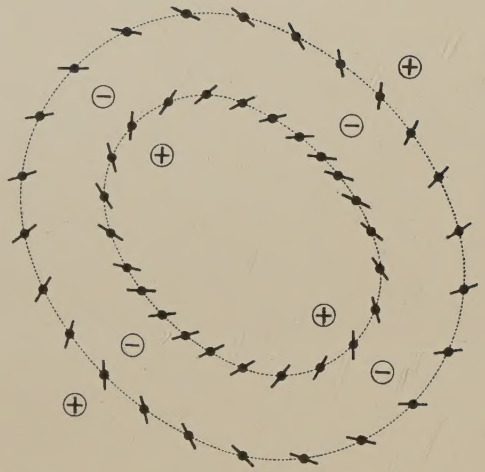


Fig. 8.

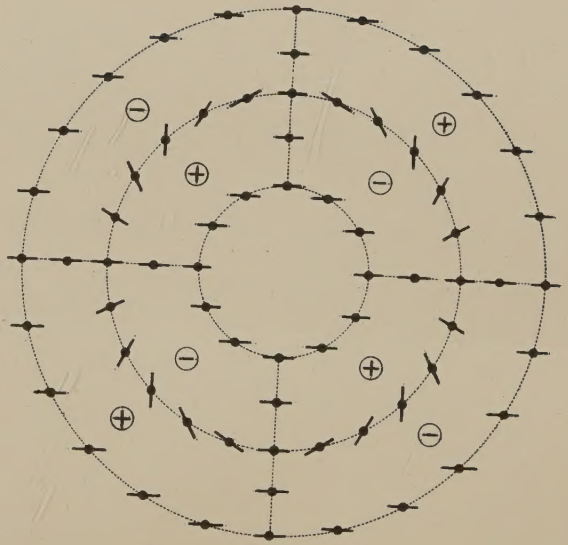
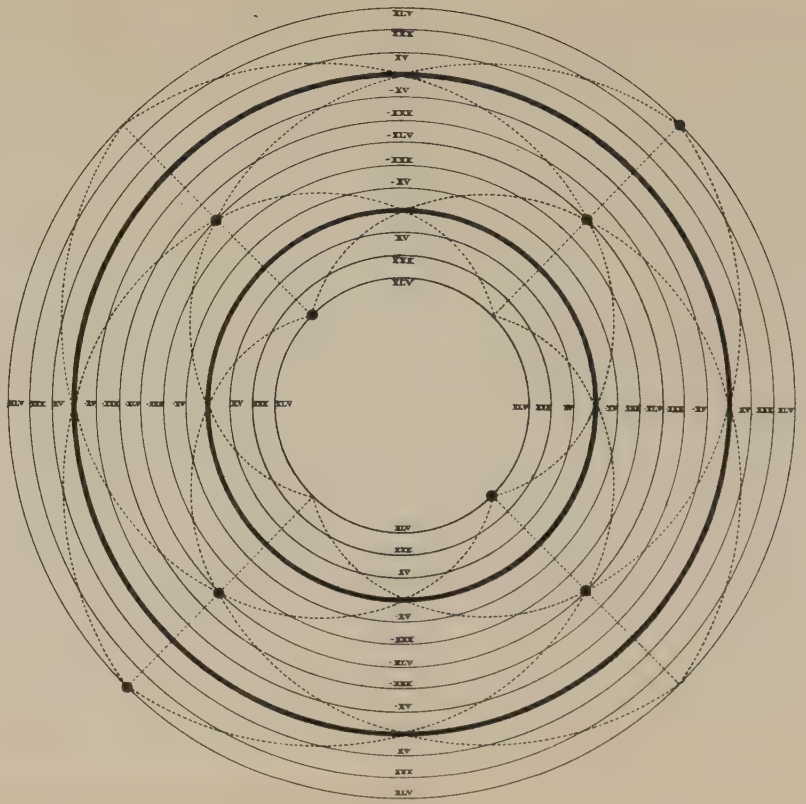


Fig. 2.



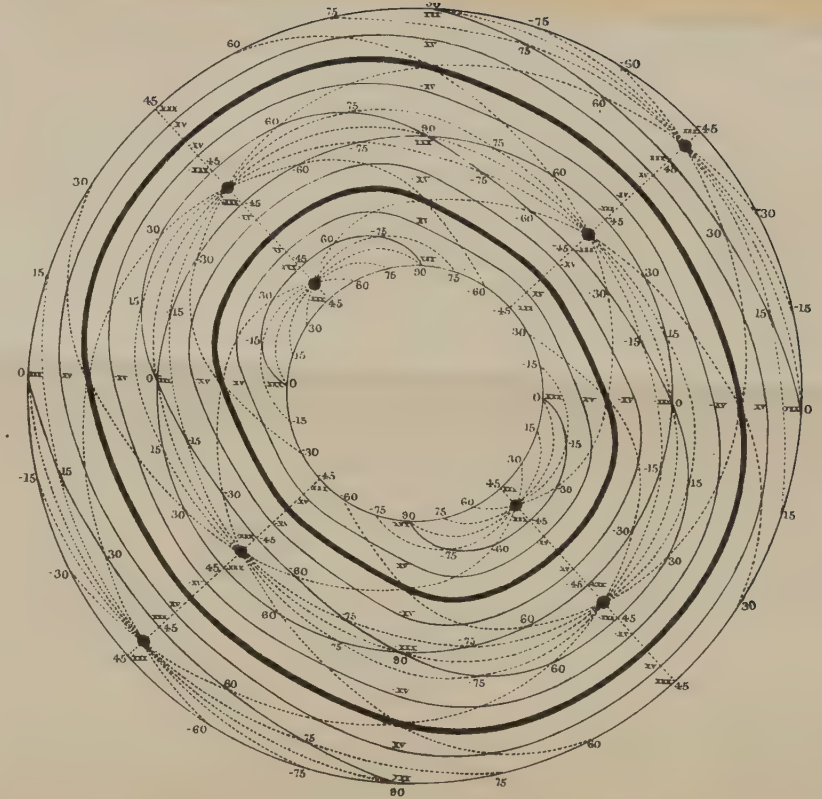


Fig: 4.

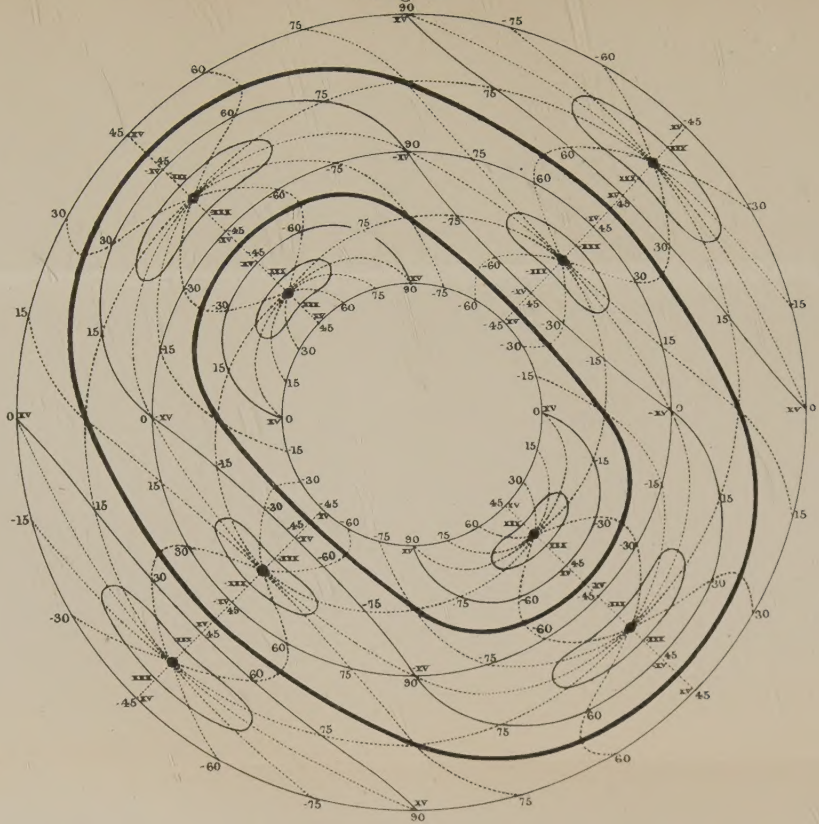


Fig. 3.

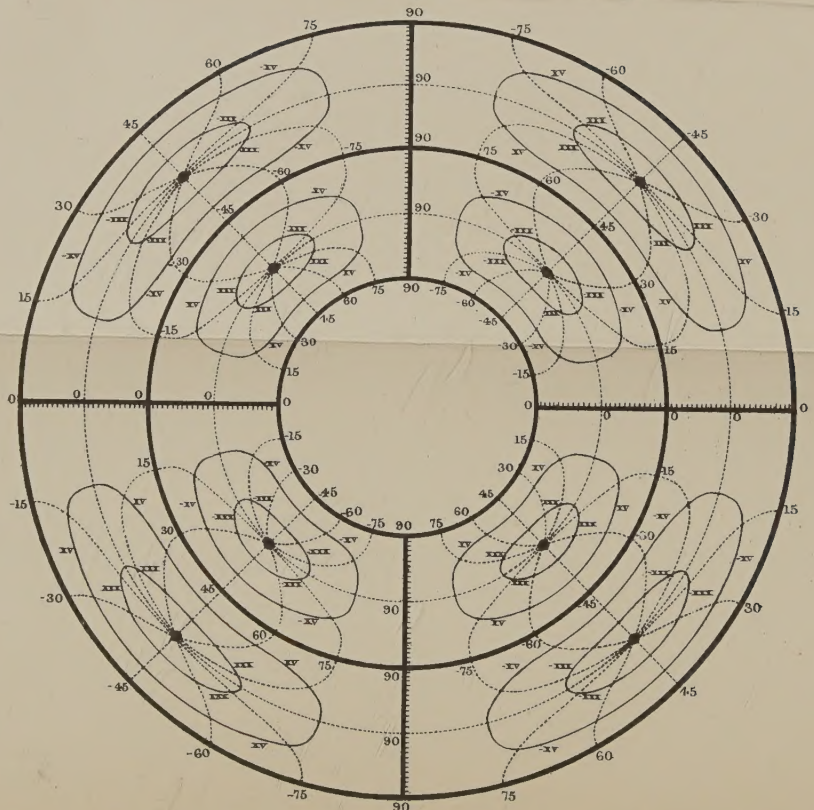


Fig. 9.

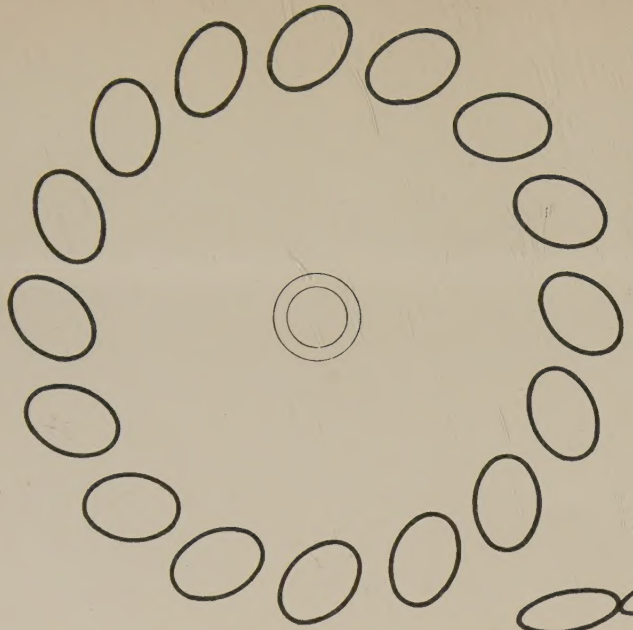


Fig. 10.

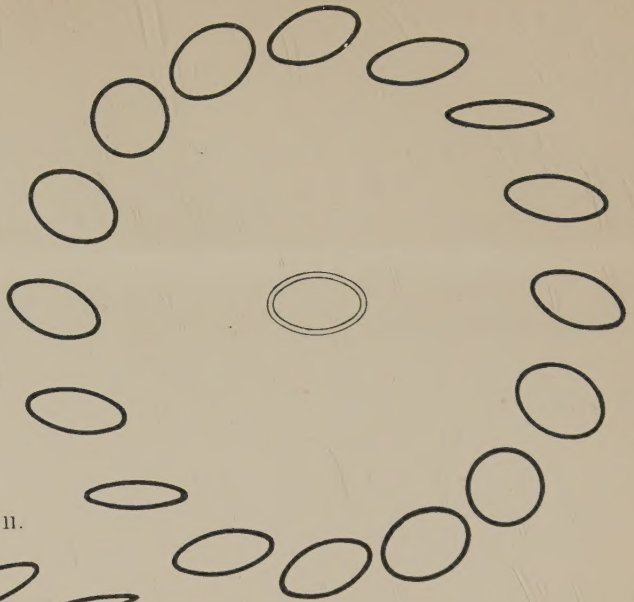


Fig. 11.

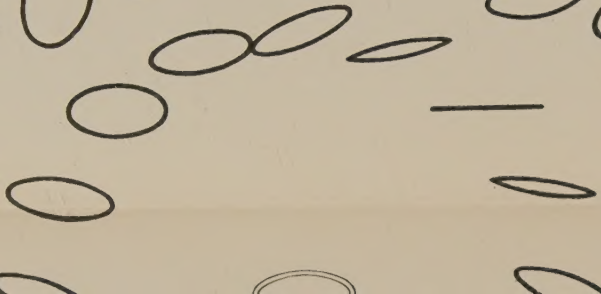


Fig:12.

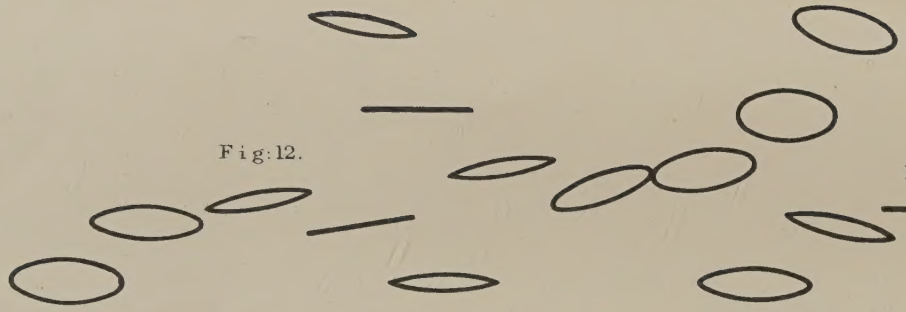
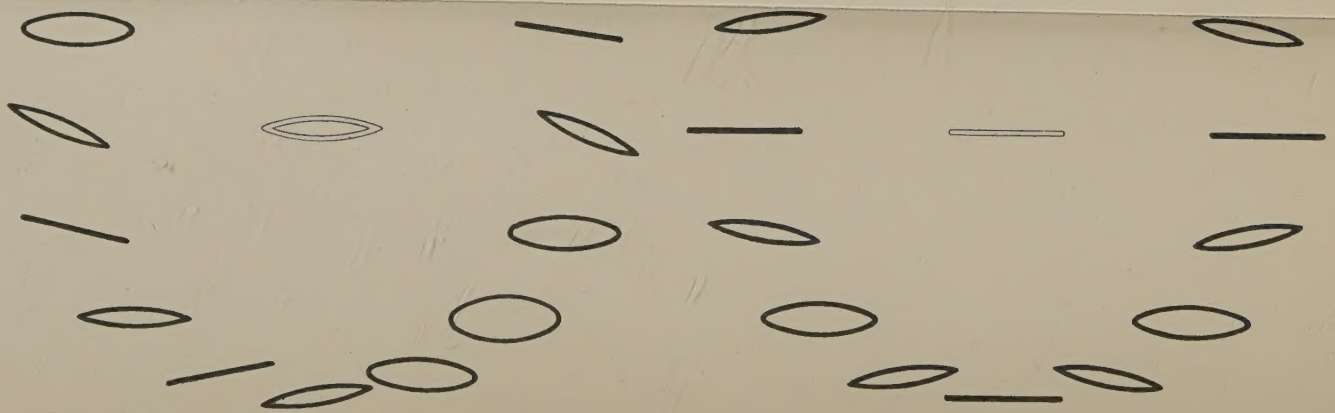



Fig:13.